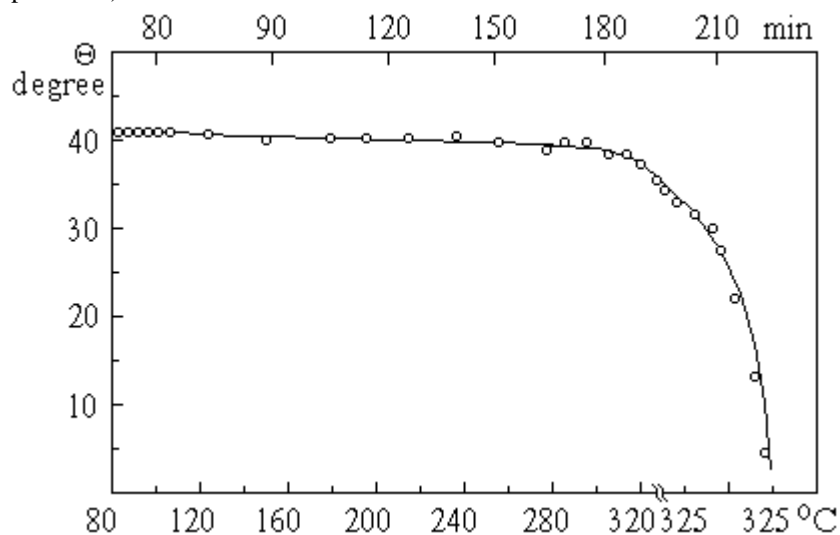


The Wetting of Lithium by Liquid Sodium, Potassium, and Rubidium

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Knowledge of the contact angles of liquid metals with various solids is of practical and theoretical importance in metal casting, welding, and brazing and in two-phase flows such as that of a liquid rivulet over a solid surface.

The wetting of metallic Li by liquid Na, K, and Rb has been studied by measurement of contact angles over wide ranges of time and temperature. The purities of the metals were as follows: Li – 99.5 %, Na – 99.993 %, K – 99.99 %, Rb – 99.99 %. The experimental accuracy to which the contact angle could be measured was about $\pm 1.5^\circ$ (sessile-drop method).



On the basis of our results, we present in the figure some data on the wetting versus the temperature and time for the lithium-sodium system. Temperature thresholds of wetting, when the wetting angle abruptly decreases, have been observed for all systems except Li-Rb. It has been shown, that the wetting angles for Li by Na, K and Rb at the melting points are 42° , 26° and 15° , accordingly. The obtained data have been discussed.